

What is claimed is:

1. A method for introducing a compound into a Gram negative bacterial cell, the method comprising contacting the cell with a biotinylated compound, wherein the
5 compound comprises a peptide or a peptidomimetic.
2. A method for introducing a compound into a Gram negative bacterial cell, the method comprising contacting the cell with a biotinylated compound to effect delivery of the compound into the cytosol of the cell, wherein the compound
10 comprises a peptide or a peptidomimetic.
3. A method for introducing a compound into a Gram negative bacterial cell, the method comprising contacting the cell, in the absence of a membrane-permeabilizing agent, with a biotinylated compound.
15
4. The method of claim 3 wherein the contact is effective to deliver the compound into the cytosol of the cell.
5. A method for identifying a compound having antimicrobial activity
20 comprising:
 contacting a Gram negative bacterial cell with biotinylated compound to cause uptake of the biotinylated compound by the cell;
 determining whether the biotinylated compound has an antimicrobial effect on the cell.
25
6. The method of any one of claims 1, 2 or 5 wherein the cell is contacted with the biotinylated compound in the absence of a membrane-permeabilizing agent.
7. The method of any of claims 3 to 6 wherein the compound comprises a
30 peptide or a peptidomimetic.

8. The method of any of the preceding claims further comprising linking a biotin moiety to the compound to yield the biotinylated compound.
9. The method of any of the preceding claims wherein the biotinylated
5 compound comprises a biotin moiety covalently linked to the compound through a biotin carboxyl group.
10. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising least 2 amino acids.
- 10 11. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising at least 5 amino acids.
12. The method of any of the preceding claims wherein the compound comprises
15 a peptide or peptidomimetic comprising at least 10 amino acids.
13. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising at least 20 amino acids.
- 20 14. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising between 10 and 31 amino acids.
15. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising between 10 and 50 amino acids.
- 25 16. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising between 10 and 60 amino acids.
17. The method of any of the preceding claims wherein the compound comprises
30 a peptide or peptidomimetic comprising between 10 and 70 amino acids.

18. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising between 10 and 80 amino acids
19. The method of any of the preceding claims wherein the compound comprises
5 a peptide or peptidomimetic comprising between 10 and 90 amino acids
20. The method of any of the preceding claims wherein the compound comprises a peptide or peptidomimetic comprising between 10 and 100 amino acids
- 10 21. The method of any of claims 1, 2, or 7 to 20 wherein the peptide or peptidomimetic is conjugated to a bioactive compound.
22. The method of any of the preceding claims wherein the Gram negative bacterial cell is a cell of the genus *Escherichia*, *Salmonella*, or *Pseudomonas*.
15
23. The method of any of the preceding claims wherein the Gram negative bacterial cell is an *E. coli* cell, a *S. typhimurium* cell, or a *P. aeruginosa* cell.
24. The method of any of the preceding claims wherein the Gram negative
20 bacterial cell comprises a biotin transporter.
25. The method of claim 24 where the biotin transporter comprises a *birB/bioP* transporter.
- 25 26. The method of any of the preceding claims wherein the compound comprises a therapeutic, diagnostic or imaging agent.
27. The method of any of the preceding claims wherein the compound further comprises a targeting moiety that specifically targets a Gram negative bacterial
30 cell.

28. The method of claim 27 wherein the targeting moiety comprises a receptor ligand or an antibody or fragment thereof.

29. The method of any of the preceding claims wherein the compound comprises
5 an antibiotic.

30. The method of any of the preceding claims wherein the compound, prior to biotinylation, comprises a naturally occurring peptide.

10 31. The method of any of the preceding claims wherein the compound, prior to biotinylation, comprises a synthetic peptide.

32. The method of any of the preceding claims wherein the Gram negative bacterial cell is a pathogen.

15

33. The method of any of the preceding claims wherein the compound, when introduced into the cell, inhibits the growth of the cell.

34. The method of any of the preceding claims wherein the compound, when
20 introduced into the cell, causes the death of the cell.

35. The method of any of the preceding claims performed in the absence of calcium chloride.

25 36. A compound identified by the method for identifying a compound having antimicrobial activity as in any of claims 5 through 35.

37. A pharmaceutical composition comprising an effective amount of the compound of claim 36 and a pharmaceutically acceptable carrier.

30

38. A method for the treatment of a disease treatable by the compound of claim 36, the method comprising administering to a patient in need thereof a therapeutically effective amount of said compound.

5 39. The method of claim 38 wherein the disease is caused by a pathogenic Gram negative bacterium.

40. Use of the compound of claim 36 for preparation of a pharmaceutical composition for treatment of a disease caused by a Gram negative bacterium.

10

41. The compound of claim 36 for use as a medicament for treatment of a disease caused by a Gram negative bacterium.

42. The method of any of claims 38 to 41 wherein the disease is selected from
15 the group consisting of enteritis, septicaemia, meningitis, enteric fever, pneumonia, epiglottitis, cellulitis, diarrhea and a sexually transmitted disease.